

## REMARKS

This paper is responsive to the Office Action mailed March 18, 2008, which follows the Office Communication dated November 15, 2007, and the Office Action mailed June 1, 2007.

The Office Action of March 18, 2008, acknowledged applicant's prior amendment filed December 14, 2007,<sup>1</sup> as being a *bona fide* reply, but indicated that applicant had not fully addressed the issues under Section 112 due to concerns over optional language in the claims. This same concern was expressed in a prior Office Communication dated November 15, 2007. In a telephone conference conducted between the undersigned counsel and Examiner Felten on December 13, 2007, the undersigned counsel was informed that the Section 112 concerns would be rectified by modifying the feature "wherein the premium for an order depends on the size of the order that is matchable with one or more contra side orders" to instead read "wherein the premium for an order depends on the size of the order that is matchable with ~~one or more~~ at least one contra side ~~orders~~ order." Applicant accordingly added the above amendment to the amendments of Claims 1, 13, 14, 21, and 30, as previously presented on September 4, 2007, and submitted a reply on December 14, 2007.

It appears the Examiner still has concerns over optional language in the claims. However, the precise claim language that is considered objectionable is not set forth in the Office Action. Nevertheless, to allay any remaining concerns over wording that may be considered optional, applicant has revised the amendments of Claims 1, 13-14, 16-18, 21, 23, 30, and 31 to remove alternative language. For example, instead of reciting "premiums to be offered or demanded for the orders at a particular price," the wording has been revised to read "a premium for the order at a particular price." Likewise, instead of reciting "the premium either adds to or subtracts from the particular price and sets a price for pairing," the wording has been revised to read "the particular price is adjusted in accordance with the premium when setting a price for

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<sup>1</sup> In the Office Action, the Detailed Action refers to "[t]he reply filed on 12/20/2007." This is believed to be a typographical error. The Office Action Summary correctly notes the filing date of applicant's prior amendment of December 14, 2007.

pairing." As with the amendments made in response to the Office Communication of November 15, 2007, the revised amendments provided herewith do not narrow the scope of the claims and the claims should be examined accordingly.

For convenience of examination, the following remarks are copied from applicant's prior response of September 4, 2007; except where appropriate, the remarks have been modified to reflect the revisions to the claim amendments noted above.

Claims 1-31 are pending in the application. Claims 1-5, 7-11, 13-14, 16-18, 20-23, 25-28, and 30-31 have been amended. Applicant requests reconsideration of the claims and allowance of the application.

#### Interview Summary

Prior to discussing the Office Action and the patentability of the claims, the undersigned counsel wishes to thank Examiner Felten for the time and consideration he extended in a personal interview conducted August 29, 2007, as well as a telephone conference conducted December 13, 2007. In summary, the August 29, 2007, interview focused on proposed amendments to the claims and the patentability of the claims over the cited art (Jain and Lupien). At the conclusion of the interview, it was agreed to formally submit an amendment as filed September 4, 2007, for further consideration. The December 13, 2007, telephone conference focused on rectifying allegedly objectionable optional language in the claims. At the conclusion of the conference, it was agreed to formally resubmit applicant's prior response with revised amendments as filed December 14, 2007.

#### Claims 1-31 Satisfy the Requirements of Section 112, Second Paragraph

The Office Action of June 1, 2007, rejected Claims 1-31 under 35 U.S.C. § 112, second paragraph, as being indefinite. The amendments to the claims are believed to address the concerns raised in the Office Action. As noted in the claims, the particular price is adjusted in accordance with the premium when setting a price for pairing. Furthermore, the condition "if a portion of the order is determined to be unmatchable" has been rephrased as "when a portion of the order is unmatchable." Additionally, the reference to "one or more contra side orders" has

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been rephrased as "at least one contra side order." Withdrawal of the claim rejections under Section 112 is requested.

#### Patentability of Claims 1-31 Over Jain and Lupien

Claims 1-31 were further rejected under 35 U.S.C. § 103(a) as being unpatentable over Jain et al. (U.S. 6,343,278), in view of Lupien et al. (U.S. 5,689,652).

As discussed in applicant's response of September 4, 2007, the present application is directed to facilitating the trading of orders having a premium associated therewith. A premium for an order is offered or demanded relative to a current market price for the order. The orders are paired for trading in accordance with their respective premiums. See, for example, page 15, lines 19-28, and page 33, lines 10-26, of the present application. See also the discussion of an embodiment at page 94, line 16, to page 96, line 15. It should be understood that these examples and other examples referred to herein are referenced to illustrate possible implementations, but are not in themselves limiting to the scope of the claims.

A premium for an order is also referred to as the "aggressiveness" of the order. If the aggressiveness is a positive value, then the order is offering a premium relative to the market price. If the aggressiveness is a negative value, then the order is demanding a premium relative to the market price.

During the Examiner interview of August 29, 2007, the foregoing concepts were further discussed in reference to the embodiment disclosed at page 95, lines 10-30, with respect to FIGURE 90, where "oU" refers to an "order umpire" that facilitates trading:

FIG. 90 is a flowchart showing match list aggressiveness processing. At step 2005, oU 30 initializes to the first pair of orders in its match list. At step 2010, using the liquidity curve specified by the respective order, and its matchable size, oU 30 determines the premium offered or demanded for each of the buy and sell sides. At step 2015, oU 30 classifies the order pair according to the buy and sell side premiums.

If the classification is that both sides are offering a premium, then at step 2020, oU 30 sets the match price to the market price, and marks the order pair as matchable.

If the classification is that the premium offered by the buy side is at least as large as the premium demanded by the sell side, then at step 2025, oU 30 sets the match price to the market price plus the sell side premium, and marks the order pair as matchable.

If the classification is that the premium offered by the buy side is less than the premium demanded by the sell side, then at step 2030, oU 30 marks the order pair as unmatchable.

If the classification is that the premium demanded by the buy side is smaller than or equal to the premium offered by the sell side, then at step 2035, oU 30 sets the match price to the market price less the buy side premium, and marks the order pair as matchable.

If the classification is that the premium demanded by the buy side is greater than the premium offered by the sell side, then at step 2040, oU 30 marks the order pair as unmatchable.

If the classification is that the buy side and the sell side are both demanding premiums, then at step 2045, oU 30 marks the order pair as unmatchable.

At step 2050, oU 30 checks whether there are more pairs in its match list; if so, processing returns to step 2010, and if not, processing is complete.

An example illustrating this processing is set forth at page 96, line 16, to page 99, line 5, of the present application.

#### Claim 1

Claim 1 was rejected based solely on Jain. In rejecting Claim 1, the Office Action referred to the Abstract and Col. 8, lines 55+, of Jain. Jain relates to an order facility that permits a trader to submit a group of related orders, particularly for derivatives based on an underlying currency or other commodity. See Col. 2, lines 1-4. The group of orders may be subject to a common order limit whereby all of the related orders are automatically reduced whenever one such order is accepted. See Col. 2, lines 4-8, and Col. 9, lines 32-37. Once submitted, new orders are matched with outstanding orders in price/time priority. See Col. 3, lines 34-35.

In contrast to Jain, Claim 1 of the present application calls for "determining, by a computer, for each order in a batch, a premium for the order at a particular price, wherein for a respective order, the particular price is adjusted in accordance with the premium when setting a price for pairing," and "pairing, by a computer, the orders in the batch in accordance with their

respective premiums." Further according to Claim 1, "the premium for an order depends on the size of the order that is matchable with at least one contra side order, and when a portion of the order is unmatchable in a pairing, the method further comprises reducing the size of the order by the size of the unmatchable portion and determining a new premium for the order in accordance with the reduced order size."

Jain fails to disclose or suggest anything relating to a premium for an order in a batch at a particular price, where the particular price is adjusted in accordance with the premium when setting a price for pairing. Consequently, Jain also fails to disclose or suggest the remaining features, such as automatically pairing the orders in the batch in accordance with their respective premiums and determining new premiums for orders having an unmatchable portion, as set forth in Claim 1.

With respect to Claim 1, the Office Action did not cite Lupien (or any other reference) in combination with Jain. Nonetheless, applicant has considered the disclosure of Lupien and submits that Lupien does not provide disclosure that overcomes the deficiencies of Jain discussed above. In particular, Lupien does not teach a process of determining premiums or pairing the orders in accordance with their respective premiums, nor does Lupien disclose the features wherein the premium for an order depends on the size of the order that is matchable, and determining a new premium for the order if a portion of the order is unmatchable in a pairing.

A *prima facie* case of obviousness requires references that teach all the elements in the claims at issue as arranged in the claims. Failing to disclose all the elements of Claim 1, Jain does not support a *prima facie* case of obviousness under Section 103. Claim 1 should be allowed.

## Claim 2

The Office Action cited the combination of Jain and Lupien to reject Claim 2. Applicant respectfully traverses the rejection and submits that Claim 2 is patentable over Jain and Lupien, both for its dependence on allowable Claim 1 and for the additional subject matter it recites.

Lupien teaches a crossing network that matches buy and sell orders according to satisfaction density profiles of the buyer and seller so that each trader is assured that the overall outcome maximizes the mutual satisfaction of all traders. See, e.g., the Abstract. Each satisfaction density profile characterizes a trader's degree of satisfaction with a transaction. For every buy/sell profile pair, a central matching computer (CMC) calculates a mutual satisfaction cross product. Trades are matched in order, starting with the highest value of mutual satisfaction. See Col. 4, lines 16-26.

Claim 2 includes all of the elements of Claim 1. While Lupien teaches the correlation of "satisfaction density profiles" of respective traders to "maximize the mutual satisfaction of all traders" (Abstract), Lupien does not disclose or suggest anything relating to premiums for orders in a batch at a particular price, where the particular price is adjusted in accordance with the premiums when setting a price for pairing. Lupien also fails to disclose or suggest the remaining features, such as automatically pairing the orders in accordance with their respective premiums and determining new premiums for orders having an unmatchable portion. The Office Action cited Lupien for its alleged disclosure of a batch process using liquidity curves, but this disclosure does not overcome the deficiencies of disclosure of Jain. Accordingly, Claim 2 is patentable over the combination of Lupien and Jain.

### Claims 3-13

Claims 3-13 were rejected based solely on Jain. Applicant submits that Jain does not anticipate or render obvious the subject matter of Claims 3-13, particularly as these claims depend either directly or indirectly from Claim 1.

Specifically, Jain fails to disclose and thus does not render obvious the following elements:

- wherein determining the premium for each order occurs when the orders in the batch are posted to the batch process (Claim 3). The disclosure in Jain at Col. 9, lines 21-37, does not read on this feature.
- wherein pairing the orders in the batch includes giving preference to orders offering premiums, the preference being proportional to the size of the premium

(Claim 4). The disclosure in Jain at Col. 9, lines 32-41, does not read on this feature.

- wherein pairing the orders in the batch includes giving preference to orders demanding premiums, the preference being inversely proportional to the size of the premium (Claim 5). The disclosure in Jain at Col. 9, lines 42-49, does not read on this feature.
- further comprising automatically setting the price for each pairing based on the premiums associated with the orders in the pairing (Claim 6). The disclosure in Jain at Col. 9, line 66, to Col. 10, line 22, does not read on this feature.
- wherein a pairing includes a buy order and a sell order, and wherein said automatically setting sets the price for pairing to a market price when both orders are offering a premium (Claim 7). The disclosure in Jain at Col. 8, line 55, to Col. 9, line 19, does not read on this feature.
- wherein a pairing includes a buy order and a sell order, and wherein said automatically setting sets the price for the pairing to a market price plus the sell order premium when the premium offered by the buy order is at least the premium demanded by the sell order (Claim 8). The disclosure in Jain at Col. 9, lines 21+, does not read on this feature.
- wherein a pairing includes a buy order and a sell order, and wherein said automatically setting sets the price for the pairing to a market price less the buy order premium when premium offered by the sell order offer premium is at least the premium demanded by the buy order (Claim 9). The disclosure in Jain at Col. 9, line 66, to Col. 10, line 12, does not read on this feature.
- wherein a pairing includes a buy order and a sell order, and wherein said automatically setting marks the pairing as unmatchable when the premiums indicate lack of a mutually acceptable price (Claim 10). The Office Action did not specifically indicate where this feature is believed to be taught. Applicant submits that Jain does not disclose this feature.
- wherein the premiums indicate lack of a mutually acceptable price when (i) the buy order is demanding a premium that is greater than the premium offered by the sell order, (ii) the sell order is demanding a premium that is greater than the premium offered by the buy order, or (iii) the buy order and the sell order are both demanding premiums (Claim 11). The disclosure in Jain at Col. 10, lines 47+, does not read on this feature.
- further comprising automatically adjusting the price for a pairing when one of the orders in the pairing is also participating in an unmatchable pairing (Claim 12). The disclosure in Jain at Col. 10, lines 47+, does not read on this feature.

### Claims 17, 19, and 20

The Office Action did not specifically address Claims 17, 19, and 20. Nevertheless, applicant submits that these claims are patentable over Jain and/or Lupien, both for their dependence on an allowable base claim and the additional elements they recite, which include:

- wherein the liquidity curve associated with each order is defined by the size of the order and the premium for the order at each size (Claim 17). The satisfaction density profiles are much more complicated, involve more parameters, and are more difficult to manage.
- wherein the premium for each order is defined relative to the current market price of the order (Claim 19).
- wherein prior to pairing the orders, the method further comprises sorting the orders in the batch for each side of a trade, wherein the orders are sorted from the order having the highest premium offered to the order having the highest premium demanded (Claim 20).

### Claims 13 and 18

Claim 13 was rejected based solely on Jain. Applicant respectfully traverses this rejection.

Claim 13 calls for "automatically, for each order in a batch, converting a liquidity curve respectively associated with the order into a premium for the order at a particular price, wherein for a respective order, the particular price is adjusted in accordance with the premium when setting a price for pairing, and wherein the premium for an order depends on the total size of the order that is matchable with at least one contra side order," and "automatically posting the orders with premiums to a batch process for automatically pairing the orders in accordance with their respective premiums, and when a portion of the order is determined to be unmatchable, then reducing the total size of the order that is matchable by the size of the unmatchable portion and redetermining the premium for the order in accordance with the reduced matchable size and the liquidity curve associated with the order."

Jain fails to teach or suggest the elements of Claim 13 for reasons similar to those discussed above with respect to Claim 1. Consequently, the disclosure of Jain does not support a *prima facie* case of obviousness of Claim 13 under Section 103. Claim 13 should be allowed.



The Office Action did not specifically address Claim 18. Nevertheless, applicant submits that Claim 18 is allowable, both for its dependence on Claim 13 and for the additional subject matter it recites.

Claims 14-16

Claims 14 and 15 were rejected as being unpatentable over Jain in view of Lupien. Applicant respectfully traverses these claim rejections.

Claim 14 calls for "selecting, by a computer, an order processing methodology wherein a premium for the order at a particular price is automatically determined based on a liquidity curve and the order is automatically paired in accordance with its premium," and "posting, by a computer, the order to a market operative according to the selected order processing methodology." Further according to Claim 14, "the premium for the order depends on the size of the order that is matchable with at least one contra side order at the market, and when a portion of the order is unmatchable at the market, the method further comprises reducing the size of the order by the size of the unmatchable portion and determining a new premium for the order in accordance with the reduced order size and the liquidity curve associated with the order."

For the reasons discussed above, particularly with respect to Claims 1 and 2, neither Jain nor Lupien, alone or combined, teach all of the elements of Claim 14. Thus, Claim 14 should be allowed.

The Office Action failed to specifically address Claim 16. Nevertheless, applicant submits that Claims 15 and 16 are allowable because they depend from Claim 14 and incorporate all of the features that patentably distinguish Claim 14 over Jain and Lupien. Claims 15 and 16 also present additional subject matter that is not taught or suggested by Jain or Lupien ("wherein the market determines the premium when the order is posted thereto" and "the liquidity curve is defined by the size of the order and the premium for the order at each size").

### Claims 21-29

The Office Action did not specifically address Claims 21-29. Nevertheless, applicant submits that the claims are patentable over Jain and/or Lupien, particularly for reasons similar to those discussed above.

Claim 21 is directed to a computer system for facilitating trading of orders in a batch process. The computer system includes a computer having a processing component configured to "automatically determine, for each order in a batch, a premium for the order at a particular price, wherein for a respective order, the particular price is adjusted in accordance with the premium when setting a price for pairing," and to "automatically pair the orders in the batch in accordance with their respective premiums." The premium for an order "depends on the size of the order that is matchable with at least one contra side order." When a portion of the order is unmatchable in a pairing, the processing component is configured to "reduce the size of the order by the size of the unmatchable portion and determine a new premium for the order in accordance with the reduced order size."

While the Office Action did not describe how Jain and/or Lupien applies to these claims, applicant submits that the cited art fails to teach or suggest the elements recited. Claim 21 should be allowed. Additionally, Claims 22-29 should be allowed, both for their dependence on Claim 21 and for the additional subject matter they recite.

### Claims 30 and 31

As with Claims 21-29, the Office Action did not specifically address Claims 30 and 31. Nevertheless, applicant submits that the claims are patentable over Jain and/or Lupien, particularly for reasons similar to those discussed above.

Claim 30 is directed to a computer-accessible medium having executable instructions stored thereon for facilitating trading of orders in a batch process. The instructions, when executed, cause a computer to "automatically convert, for each order in a batch, a liquidity curve respectively associated with the order into a premium for the order at a particular price, wherein for a respective order, the particular price is adjusted in accordance with the premium when

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setting a price for pairing, and wherein the premium for an order depends on the size of the order that is matchable with at least one contra side order." The instructions, when executed, further cause the computer to "automatically post the orders with premiums to a batch process, the batch process for automatically pairing the orders in accordance with their respective premiums." When a portion of the order is unmatchable, the instructions further cause the computer to "reduce the size of the order by the size of the unmatchable portion and determine a new premium for the order in accordance with the reduced order size and the liquidity curve associated with the order."

Applicant submits that Jain and Lupien do not teach or suggest the elements recited in Claim 30; thus, Claim 30 should be allowed. Additionally, Claim 31 should be allowed, both for its dependence on Claim 30 and for the additional subject matter it recites ("wherein the liquidity curves are defined by the size of the order and the premium for the order at each size").

#### CONCLUSION

Applicant requests withdrawal of the claim rejections and issuance of a notice of allowance. Should the Examiner identify any additional matters needing resolution prior to allowance, the Examiner is invited to contact the undersigned counsel by telephone.

Respectfully submitted,

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